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# United States Patent [19]

Taylor et al.

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## [54] ORTHOPAEDIC FIXATION PLATE

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## [56] References Cited

### U.S. PATENT DOCUMENTS

2,055,024	9/1936	Bittner .....	606/56
4,033,340	7/1977	Kalnberz .	
4,889,111	12/1989	Ben-Dov .	
5,062,844	11/1991	Jamison et al. .	
5,275,598	1/1994	Cook .....	606/56
5,372,597	12/1994	Hotchkiss et al. ....	606/56
5,776,132	7/1998	Blyakher .....	606/64

### FOREIGN PATENT DOCUMENTS

WO 96/26678 9/1996 WIPO .

### OTHER PUBLICATIONS

"Monticelli Spinelli External Fixation System," pp. 1-28,  
 Pfizer Hospital Products Group, 1991.

"Techniques in Orthopaedics, Basic Ilizarov Techniques,"  
 vol.5, No.4, Dec. 1990.

Gavril A. Ilizarov, "Transosseous Osteosynthesis—Theoretical and Clinical Aspects of the Regeneration and growth of Tissue", Springer-Verlag, 1992.

A.S.A.M.I. Group, Operative Principles of Ilizarov—Fracture Treatment, Nonunion Osteomyelitis, Lengthening Deformity Correction, Medi Surgical Video, 1991.

M.A. Catagni, V. Malzev—A. Kirienko, "Advances in Ilizarov Apparatus Assembly—Fracture Treatment, Pseudarthroses—Lengthening Deformity Correction," Medicalplastic srl, 1994.

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[57]

## ABSTRACT

A plate for use in fixating the position of a first bone segment relative to a second bone segment, the plate comprising a body portion having a plurality of attachment mechanisms located therein, wherein the attachment mechanisms include: a first group of three attachment mechanisms substantially positioned within 90°–150° of one another about a circle, and preferably within substantially 120° of one another, whereby the first group of attachment mechanisms is designed to facilitate attachment of a plurality of adjustable length struts to the plate; and a second group of attachment mechanisms substantially positioned about the circle that are designed to facilitate attachment of accessories to the plate, wherein the total number of the attachment mechanisms is a multiple of three.

**8 Claims, 7 Drawing Sheets**

